SERVICE & TECHNICAL DESCRIPTION

BItNet Service

MAY 2021

BORSA ITALIANA

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1. INTRODUCTION

1.1. Document history

Version	Date	Description
1.0	May 2021	Version 1.

1.2. Purpose

The purpose of this document is to provide customers with an overview of the 2Mb/10Mb/100Mb/1Gb BItNet service (the "Service").

This document provides details on the service and its introduction, including the delivery timescales, service deployment model and types of equipment used including appropriate power, space and cooling requirements

This document constitutes a supplement to, and forms part of, the Technical Specification set of documents published by Borsa Italiana.

1.3. Readership

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2. TECHNICAL CONFIGURATION

2.1. Service Description

The service is composed of one (in case of non resilient service, not available for 1Gb service) or two lines (in case of resilient service). In case of resilient services, the lines are provided by two different carriers (chosen by Borsa Italiana).

The available bandwidth sizes are:

- 2Mb (resilient or non resilient)
- 10 Mb (resilient or non resilient)
- 100 Mb (resilient or non resilient)
- 1 Gb (resilient only)

2.2. Physical Connection

The new service will be delivered by fibre optical or copper cable directly to customer sites. The circuit will have RJ45 or Single/Multi Mode SFP presentation for the customer's network service access point.

The customer's network service access point at the Network Layer will be a pair of Juniper switches.

The Physical SAP service connection is delivered over copper, using the standard RJ45 physical socket.

2.3. Physical Cabling and Connectivity

The equipment that is installed within the client site includes transmission and IP (Internet Protocol) equipment. As mentioned elsewhere in the document, the actual location of the equipment may vary depending on what is already installed at a customer site and what accommodation is available at the site; however, the actual connectivity between the IP devices doesn't really change.

2.3.1. Device name

The devices are labelled as follows:
- Primary Juniper switch: RO88XXXM
- Secondary Juniper switch: RO88XXXS

Where XXX is the BIt Network Code (001, 002, etc.).

2.3.2. Production Connectivity

- RJ45 copper connection from the transmission equipment connects to each Juniper switch on port GigabitEthernet 0/0/0.

- The two Juniper connect together using two copper straight cables:
  - One between port GigabitEthernet 0/0/22 of each device
  - One between port GigabitEthernet 0/0/23 of each device

This is effectively the resilient path which is used in case of the failure of one WAN link (this is shown as black on the diagram below).

- The client LAN interconnect is connected to
  - GigabitEthernet 0/0/1 on both Juniper for the Unicast traffic
  - GigabitEthernet 0/0/2 on both Juniper for the Multicast traffic

2.4. Customer IP Addressing

The Exchange will assign blocks of registered addressing for use. The customer will be given two /25 VLANs (configured on two different interfaces, as shown in the above picture):

- **VLAN 1**, for **Unicast** Traffic:
  - subnet is 10.88.X.0/25
  - 10.88.X.61 is the physical address of the customer interface of the primary customer device (G0/0/1)
  - 10.88.X.62 is the physical address of the customer interface of the secondary customer device (G0/0/1)
  - 10.88.X.60 is the VRRP Virtual IP address (customer gateway)

- **VLAN 2**, for **A Feed** Multicast Traffic:
  - subnet is 10.88.X.128/27
  - 10.88.X.129 is the physical address of the customer interface of the primary customer device (G0/0/2)

- **VLAN 3,** for **B Feed** Multicast Traffic:
  - subnet is 10.88.X.160/27
  - 10.88.X.161 is the physical address of the customer interface of the secondary customer device (G0/0/2)

The customer is free to assign other addresses (belonging to the above subnets) as source IP for to test and production services.

2.4.1. Separation between Interconnection Subnet and Service Subnet

It is **optionally** possible access to Unicast Services only from VLANs different from **VLAN 1** (10.88.X.0/25), these Subnets:

- will have to be assigned by Borsa Italiana
- will belong to 10.88.0.0/16
- the default gateway for accessing these subnets will be 10.88.X.1

2.5. Network Diagram

Follow a Network Diagram of BItNet solution:

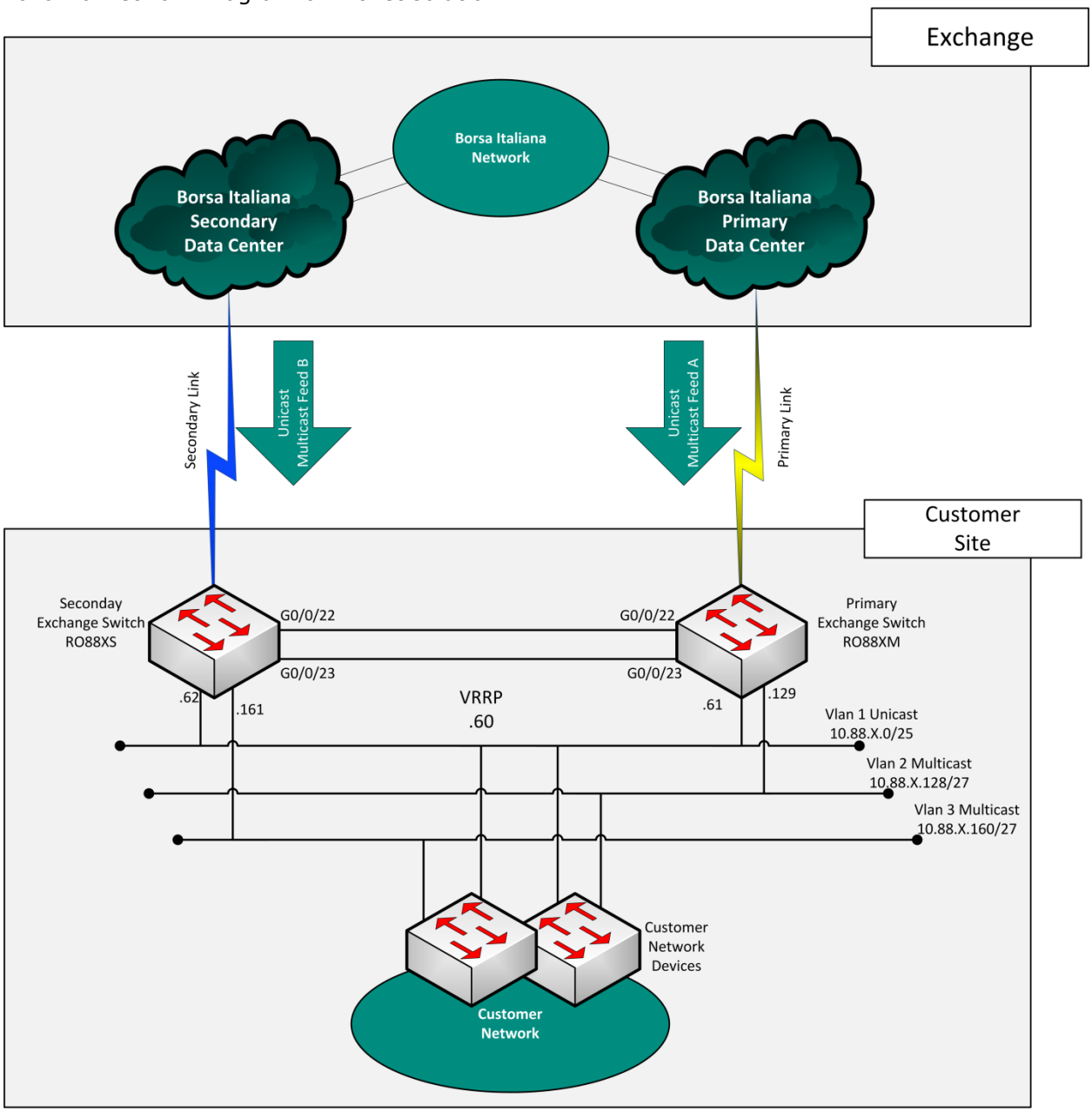

Figure 1 - BItNet Network Diagram

2.6. Multicast Exchange Services

The Multicast Exchange Services will feature active/active primary (A Stream) and secondary (B Stream) of market data being delivered at the same time.
Both streams will contain identical market data however the source and group IP Multicast addresses will be different.
The two streams of data will be sourced from the Primary and Secondary Borsa Italiana data centres and therefore there will be a generally consistent time differential between receiving the A and B stream.

Each feed will have its own source IP address with different multicast destination addresses; all of these addresses will be registered.

Reply and Recovery services will be provided separately through the two lines (Reply and Recovery services for A Stream through the primary line and Reply and Recovery services for B Stream through the secondary line). These services will be provided through the **VLAN 1** (dedicated to Unicast Traffic).

Multicast will be forwarded statically to customer without any dynamic multicast routing protocol.

2.7. Unicast Services

The Unicast Services provide a unicast connection to the Exchange central systems located in the Milan Primary datacentre. The unicast connections are routed as follows:

- the standard path is the Primary Link
- in case of failure of the Primary Link, connections are routed via the Secondary Link to the Primary Datacentre

3. CONTACTS

To order BItNet services or to discuss your connectivity relationship in greater detail please contact:

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